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December 31, 2001

BOX PCT

Commissioner for Patents
Washington, D.C. 20231

PCT/NL00/00456
-filed June 29, 2000

Re: Application of Patrick Michael VAN BAAL, Erwin HEESEMANS, Manfred HOEK, Ronald Marius Johannes Albertus VAN DER KLAUW, Cor KUYVENHOVEN, Henricus Willibrordus Wilhelmus MENSEN, Manon Elisabeth Hendrika SNIJDERS and Piet-Hein Willem TIMP
FLEXIBLE CONTAINER MADE OF FILM MATERIAL AND FILLING METHOD FOR FILLING SUCH A CONTAINER WITH A FLUID SUBSTANCE
Assignee: HEINEKEN TECHNICAL SERVICES B.V.
Our Ref: Q67729

Dear Sir:

The following documents and fees are submitted herewith in connection with the above application for the purpose of entering the National stage under 35 U.S.C. § 371 and in accordance with Chapter II of the Patent Cooperation Treaty:

☒ a Preliminary Amendment

The Declaration and Power of Attorney and an Assignment will be submitted at a later date.

It is assumed that copies of the International Application, the International Search Report, the International Preliminary Examination Report, and any Articles 19 and 34 amendments as required by § 371(c) will be supplied directly by the International Bureau, but if further copies are needed, the undersigned can easily provide them upon request.

The Government filing fee is calculated as follows:

Total claims	<u>12</u>	-	20	=		x	\$18.00	=	<u>\$0.00</u>
Independent claims	<u>2</u>	-	3	=		x	\$84.00	=	<u>\$0.00</u>
Base Fee									\$890.00

TOTAL FEE \$890.00

A check for the statutory filing fee of \$890.00 is attached. You are also directed and authorized to charge or credit any difference or overpayment to Deposit Account No. 19-4880. The Commissioner is hereby authorized to charge any fees under 37 C.F.R. §§ 1.16, 1.17 and 1.492 which may be required during the entire pendency of the application to Deposit Account No. 19-4880. A duplicate copy of this transmittal letter is attached.



Sughrue

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Q67729

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Priority is claimed from:

Country

Application No

Filing Date

Dutch

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June 29, 1999

Respectfully submitted,

Robert J. Seas, Jr.

Registration No. 21,092

RJS/slb

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PATENT APPLICATION
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Patrick Michael VAN BAAL, et al.

Appln. No.: PCT/NL00/00456

Confirmation No.: NOT YET ASSIGNED

Group Art Unit: NOT YET ASSIGNED

Filed: December 31, 2001

Examiner: NOT YET ASSIGNED

For: FLEXIBLE CONTAINER MADE OF FILM MATERIAL AND FILLING METHOD
FOR FILLING SUCH A CONTAINER WITH A FLUID SUBSTANCE

PRELIMINARY AMENDMENT

Commissioner for Patents
Washington, D.C. 20231

Sir:

Prior to examination, please amend the above-identified application as follows:

IN THE CLAIMS:

Please enter the following amended claims:

4. Flexible container (3) according to claim 1, characterised in that the container is folded double along closure lines (13, 14), a first layer of the film material folded double being attached via the restraining means (23, 24) to a second layer of the film material folded double.

6. Flexible container (3) according to claim 4, characterised in that on either side of a centre line of the container two side strips (20, 21) of the container are folded double along fold lines (13, 14) located parallel to the centre line.

8. Flexible container (3, 30, 34) according to claim 1, characterised in that the fill opening is provided with a shut-off valve (10), air being at least partially removed from the container.

11. Method according to Claim 9, characterised in that the flexible container (3, 30, 34) is folded double along closure lines (13, 14), the container sections folded double being attached to one another by means offering resistance (23, 24, 40, 41) which are released by the fill pressure.

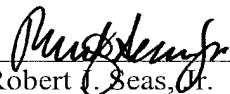
12. Method according to Claim 9, characterised in that during filling the flow rate and/or the fill pressure are measured and in that a change in rate and/or fill pressure is determined on release of the restraining member.

REMARKS

Entry and consideration of this Amendment is respectfully requested.

Respectfully submitted,

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Date: December 31, 2001


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APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

The claims are amended as follows:

4. Flexible container (3) according to claim 1 ~~or 2~~, characterised in that the container is folded double along closure lines (13, 14), a first layer of the film material folded double being attached via the restraining means (23, 24) to a second layer of the film material folded double.

6. Flexible container (3) according to claim 4 ~~or 5~~, characterised in that on either side of a centre line of the container two side strips (20, 21) of the container are folded double along fold lines (13, 14) located parallel to the centre line.

8. Flexible container (3, 30, 34) according to ~~one of the preceding claims 1,~~ characterised in that the fill opening is provided with a shut-off valve (10), air being at least partially removed from the container.

11. Method according to Claim 9 ~~or 10~~, characterised in that the flexible container (3, 30, 34) is folded double along closure lines (13, 14), the container sections folded double being attached to one another by means offering resistance (23, 24, 40, 41) which are released by the fill pressure.

12. Method according to Claim 9, ~~10 or 11~~, characterised in that during filling the flow rate and/or the fill pressure are measured and in that a change in rate and/or fill pressure is determined on release of the restraining member.

01.08.2001

(45)

Flexible container made of film material and filling method for filling such a container with a fluid substance

The invention relates to a flexible container made of film material for containing a fluid substance comprising a fill opening and a partitioning means along which a first container wall part is placed against a second container wall part, the partitioning means dividing the container in a first and a second compartment, and to a filling method for filling such a container.

A flexible container for containing carbonated drinks, such as beer, is disclosed in Netherlands Patent Application no. 1 009 654, filed on 15 July 1998 in the name of the Applicant. The known flexible container, or bag, is made of film material and is provided with a dispenser tube located between the front and back layers of film and a plastic filler cap connected to said dispenser tube. After the flexible container has been introduced in the rolled-up state into a relatively rigid outer container, the drink, such as, for example, beer, can be introduced into the flexible container via the filler cap. The flexible container unfolds until it is in contact with the inside wall of the rigid container. After filling, a dispensing line can be connected to the filler cap by the user (consumer) and the drink can be dispensed from the bag by applying an overpressure within the rigid container.

To prevent the bag filled with drink being damaged during use or transport it is important that when it is completely filled this bag is in close contact with the inside wall of the rigid container. It has been found when filling the bag that, under the influence of gravity, the lowest parts of the bag fill more rapidly than other parts and become trapped prematurely in contact with the inside wall of the rigid container. As a result the bag is not able to unfold in the desired uniform manner and high stresses can be generated. This can be problematical in particular in the area where the bag is attached to the filler cap if the bag is filled in the upright position, in which case the highest point is formed by the filler cap. Furthermore, as a result of the non-uniform unfolding of the bag, shut-off areas can form, as a result of which the bag is not completely filled.

From WO97/34794 a flexible container according to the preamble of claim 1 is known in which a controlled unfolding of the flexible inner container and complete filling of the rigid outer container by the inner flexible bag is achieved by use of sealing of two corner parts forming lugs which upon filling conform to the parallelepipedum-shaped rigid outer container. In addition, especial folding pattern using a tube-shaped cover, which slights of the

5 inner container.

It is therefore an aim of the present invention to provide a flexible container or bag and a method for the filling thereof with which uniform filling is possible without parts of the bag prematurely becoming trapped between the walls of the rigid outer container.

10 be achieved and with which it can be easily established while filling whether the filling
process meets predetermined quality requirements.

15 achieved in the first compartment, at which predetermined pressure the restraining member is released by the fill pressure for placing the first and second compartment in fluid communication.

uniform film distribution. With this arrangement the shape which the bag assumes during filling is no longer determined exclusively by gravity. After the first compartment, that, for example, can comprise a central cylindrical volume, has been filled, a pressure is built up therein such that the film storage means are released. As a result the access to the second compartment is opened up, so that this compartment is then able to fill with drink. It has been found that using the bag according to the present invention uniform filling of the bag can be obtained at high fill rates, whilst at the same time uniform contact of the filled bag with the wall of the rigid, outer container can be obtained. As a result the bag is adequately supported during use and transport and the risk of damage is reduced.

30 flow is possible, such as a fluid, a paste or a granulate. The fluid can comprise a drink, for example a carbonated drink, such as beer. In this case a pressure of approximately 1 bar prevails in the bag during filling and a pressure of approximately 2 bar prevails in the rigid container. The paste can be a food product, such as tomato puree, or any other paste.

According to one variant of the present invention the restraining member can be formed by closure lines in the film material, such as, for example, fold lines or join lines along which the front and back film layers of the bag are joined to one another. According to another variant the restraining member is acting on a part of the container that has been tucked inside
5 itself from an upper end or lower end or from the longitudinal edges.

In one embodiment which is to be preferred the restraining member comprise closure lines which essentially extend from the top to the bottom of the container, along which closure lines a front film layer of the container is essentially sealed in contact with the back film layer of the container. The closure lines can be formed by gluing or sealing the film
10 layers, but are preferably formed in that the container has been folded double along the closure lines, a first layer of the film material folded double being attached via means offering resistance to a second layer of the film material folded double. The means offering resistance can be formed by adhesive between the folded film layers, sealing of the film layers or by adhesive tape. During filling the means offering resistance give way and controlled unfolding
15 of the bag takes place, without contact with the wall and without accumulation of the fluid substance in the lower part of the bag, so that a uniform distribution of the film over the wall of the outer, rigid container will be obtained.

As a result of the controlled unfolding of the flexible container, not only are high fill rates (12 litres per minute or higher) obtained when filling the flexible container, but it is also
20 possible to sample the fill pressure and/or flow rate during filling, for example with the aid of a computer, the fill pressure and/or flow rate changing when one sub-compartment unfolds. By detecting a change in the fill pressure and/or flow rate it can be ascertained with certainty that all sub-compartment of the flexible container have unfolded, this enabling simple quality monitoring.

25 A few embodiments of a flexible container and a filling method according to the present invention will be explained in more detail with reference to the appended drawing. In the drawing:

Figure 1 shows a longitudinal section of a bag according to the present invention provided with a filler cap, accommodated in a relatively rigid outer container;

30 Figure 2 shows a detail of the filler cap attached to the bag during the filling process;

Figures 3 - 6 show various stages in the folding of a bag according to the invention;

Figures 7 and 8 show side views of two alternative embodiments of restraining members according to the present invention incorporating folding, respectively, an upper end

3a

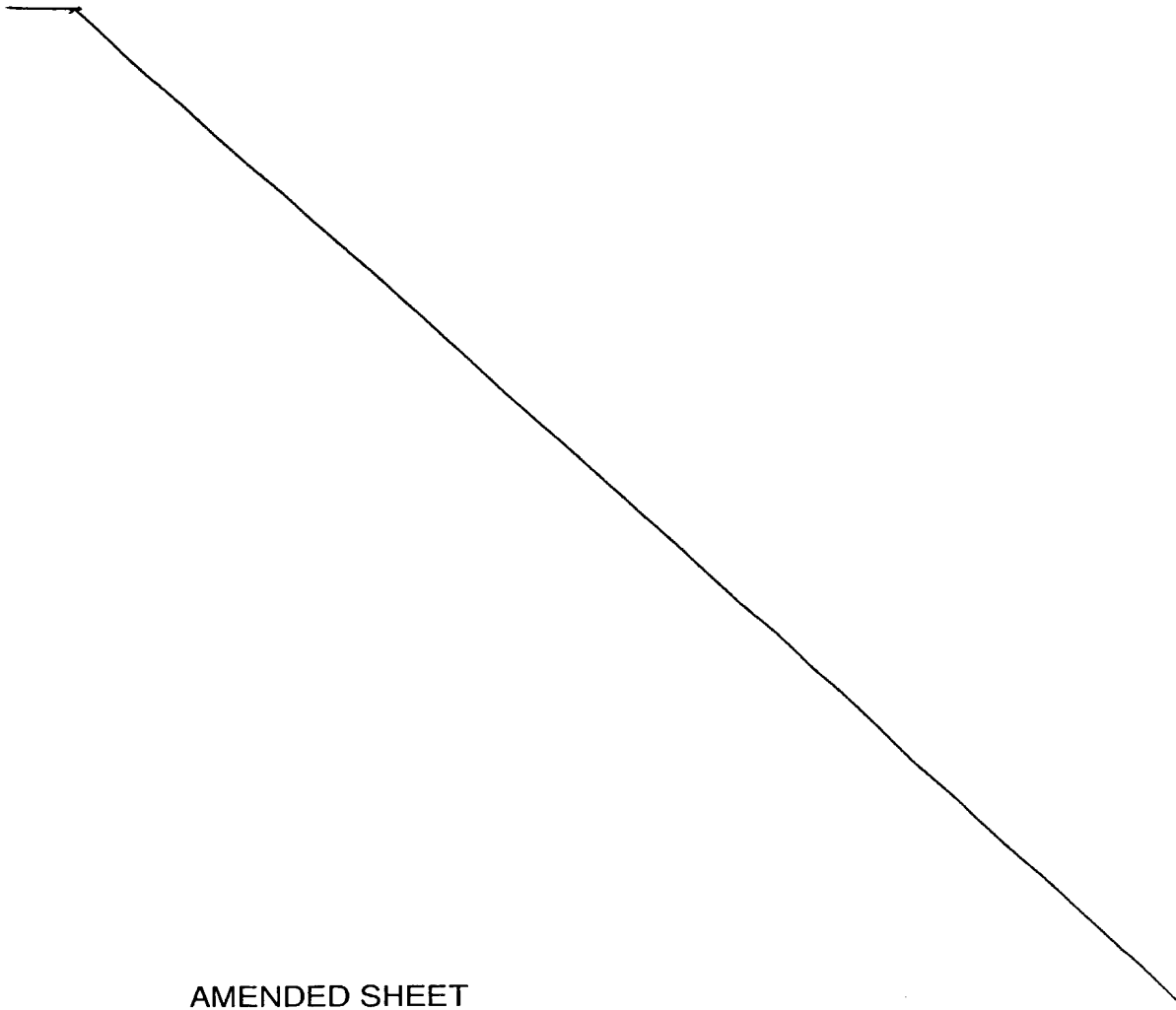
and a lower end of the bag inwards;

Figure 9 shows a diagrammatic plan view of a restraining member incorporating folding the longitudinal sides of the bag inwards; and

Figure 10 shows a graph of the flow rate of the fluid (beer) when filling.

- 5 Figure 1 shows an assembly 1 of a relatively rigid outer container 2 with a flexible container, or bag, 3 accommodated therein. The bag 3 is fixed in a sealed manner at an upper end to a fixing lip 4 which forms part of a plastic filler cap 5. The filler cap 5 is attached to a neck 7 of the rigid outer container 2 via an annular shoulder 6 such that it is clamped. The filler cap 5 is further connected to a dispenser tube 8 which extends into the flexible bag 3 to prevent the front and back walls coming into contact with one another. A fill opening 9 in the filler cap 5 is closed off. The fill opening 9 is made in the end of a shut-off valve 10 resiliently accommodated in the filler cap 5. The fill opening 9 is exposed by placing a filler tube 12 from a filling installation on the shut-off valve 10 and pushing the latter downwards, as is shown in Figure 2.
- 10

- 15 Figure 2 shows an enlarged view of the filler cap 5 of the flexible bag 3 and shows how



fluid can be introduced into the bag 3 via the filler tube 12 by pushing down the shut-off valve 10. During this operation air is able to escape from the space located between the bag 3 and the outer container 2 via ventilation passage 12' in filler tube 12. Furthermore, an internal pressure of, for example, 2 bar can be applied in the outer container 2 via the vent opening 12', for a fill pressure in the bag 3 of approximately 1 bar if the fluid is beer. In the filled state virtually the entire outer surface of the bag 3 is in contact with the wall of the outer container 2.

A recording device for measuring the flow rate and/or the pressure in the filler tube 12 is shown diagrammatically by 11. The device 11 can be a flow sensor or pressure sensor which is connected to a personal computer.

To prevent some parts of the bag 3 prematurely becoming trapped in engagement with the wall of the outer container 2 during filling, a fold pattern has been made in the bag in the embodiment according to Figures 3 to 6.

Figure 3 shows a side view of the bag 3 in its flat state, in which state air has been removed from the bag via the filler cap 5 and the dispenser tube 8 so that the bag is completely flat. The bag 3 has been made from a multilayer film which, for example, comprises an aluminium-polyethylene laminate with a thickness of approximately 70 μm to 100 μm . In the embodiment according to Figure 3 four fold lines 13, 14, 15 and 16 are indicated, along which the film material is folded. A first central compartment 17 of the bag 3 and two side compartments 18, 19 are formed by the vertical fold lines 13 and 14. By folding the side strips 20, 21 over along the fold lines 13, 14, sealing lines are formed along the fold lines 13, 14, so that the fluid introduced into the central compartment 17 through the filler cap 5 is not able to enter the side compartments 18, 19. As shown in Figure 4, the folded-over side strips 20, 21 are held in place by adhesive tapes 23, 24 applied along the free edges thereof. The bottom section 25 in Figure 4 is then folded backwards out of the plane of the drawing along the fold line 15, against the mid section 26. In Figure 5 the mid section 26 is folded forwards out of the plane of the drawing along the fold line 16, against the top section 27, so that the configuration according to Figure 6 is obtained. The bag 3 folded in accordance with Figure 6 is rolled up so that it can be introduced through the neck 7 of the outer container 2. A filler tube 12 is then connected to the filler cap 5 and the bag 3 unfolds during filling, first in the longitudinal direction to give the configuration which is shown in Figure 4. The central compartment 17 is then first of all filled with fluid from the bottom up to the dispenser tube 8, the side strips 20, 21, which are held in place by the adhesive tapes

23, 24, being prevented from engaging on the wall of the outer container 2. After the central compartment 17 has been filled and the film has been distributed in the longitudinal direction over the entire height of the outer container, the pressure therein will rise up to a value at which the adhesive tapes 23, 24 detach or tear, so that the compartments 18 and 19 are released and are then able to fill with fluid.

In this way relatively high fill rates, such as, for example, 12 litres per minute, can be obtained and a uniform increase in volume of the bag 3 is achieved without stresses becoming too high, in particular on the fixing lip 4 of the filler cap 5. What is achieved by means of the uniform filling of the bag 3 in accordance with the method described above is that the bag 3 comes uniformly into contact with the outer container 2, so that the bag 3 is adequately supported when filled and is protected against damage.

For thicker films, which because of their stiffness unfold under higher pressures, the adhesive strength of the adhesive tapes 23, 24 has to be higher and stronger adhesive tapes have to be used.

Alternative film storage means for forming different compartments 17, 18 and 19 in accordance with Figures 3 to 6 will be obvious to those skilled in the art. For instance, the adhesive tapes 23, 24 can, for example, be replaced by adhesive or fusion welding of the film material. It is also possible to fuse the front and back layers of film material of the bag 3 to one another in the flat state, as shown in Figure 3, along interrupted or uninterrupted vertical lines 13, 14 with a strength such that when the central compartment 17 has been filled the fusion seals 13, 14 give way under the pressure and release the side compartments 18, 19.

It is also possible to provide the bag with elastic in the transverse direction or to place the bag in an elastic jacket or sleeve.

Alternative embodiments of film storage means for uniform unfolding of a bag 30 having a filler cap 31 are shown in Figures 7 and 8. In this case the upper and the lower section 32, respectively, of the bag 30 has been turned "inside out" so that the section 32 is located between a front and back layer of film material of the top or bottom compartment 33. In Figure 7 the upper compartment 32 will be expelled upwards on filling, after which the lower compartment 33 is filled. In Figure 8 the upper compartment 33 will be filled first when filling the bag 30, after which, when a predetermined fill pressure is reached, the lower compartment 32 will be expelled downwards until the lower compartment 32 has also filled.

Figure 9 shows a further alternative embodiment where the material of the bag 34 has been displaced from the side edges 36, 37 indicated by a broken line towards the centre line,

so that side compartments 42, 43 and a central compartment 38 are obtained. The side compartments can be fixed in the folded position by glue points 40, 41. Depending on the flexibility of the bag 34, the glue points 40, 41 can also be omitted. After filling the central compartment 38 the parts 36, 37 folded double will be expelled outwards and the bag 34 will
5 achieve the filled configuration.

In the case of the examples described above the bag 30, 34 has always been placed upright so that the filler cap 31, 38 forms the highest point. It is also possible to fill the bag according to the present invention in the upside-down position, so that the filler cap 31, 38 forms the lowest point, the same advantages as have been discussed above being obtained.

10 Figure 10, finally, shows a graph of a flow rate determined using the device according to Figure 2 against time when filling a bag of 4 litres capacity with beer, the fill pressure being 1 bar and the pressure inside the rigid container being 2 bar. The bag was folded in accordance with the pattern that is shown in Figures 3 to 6. On filling the central compartment 17 the flow rate, after having been essentially constant, decreases sharply to
15 point A, after which the flow rate suddenly increases. This means that one of the adhesive tapes 23, 24 has detached and one of the side compartments 18 or 19 has been released. The second compartment is released at point B in the graph according to Figure 10, after which the filling process is completed relatively quickly. In the case of a perfectly symmetrical configuration of the compartments, points A and B will be coincident. By detecting the point
20 in time at which the side compartment unfolds by determining the pulse-like changes in the flow rate according to Figure 10 it is possible to determine that the side compartments have unfolded and that, on the basis of this, the filling process has proceeded in accordance with specifications.

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Claims

(45)

1. Flexible container (3,30,34) made of film material for containing a fluid substance comprising a fill opening (9) and a partitioning means along which a first container wall
5 part is placed against a second container wall part, the partitioning means dividing the container in a first (17,32,33,38) and a second (17,18,19,32,33,38,42,43) compartment, characterised in that the partitioning means comprises a restraining member (13,14,23,24) which maintains a substantially fluid tight separation of the first and second compartment until a predetermined pressure is achieved in the first compartment, at which
10 predetermined pressure the restraining member is released by the fill pressure for placing the first and second compartment in fluid communication.
2. Flexible container according to claim 1, wherein the restraining member comprises two closure lines (13,14) which extend essentially from the top of the container to the
15 bottom thereof.
3. Flexible container (3) according to claim 2, characterised in that the front film layer is joined to the back film layer along the closure lines (13, 14).
- 20 4. Flexible container (3) according to claim 1 or 2, characterised in that the container is folded double along closure lines (13, 14), a first layer of the film material folded double being attached via the restraining means (23, 24) to a second layer of the film material folded double.
- 25 5. Flexible container (3) according to claim 4, characterised in that the means offering resistance (23, 24) comprise adhesive tape.
6. Flexible container (3) according to claim 4 or 5, characterised in that on either side of a centre line of the container two side strips (20, 21) of the container are folded double along
30 fold lines (13, 14) located parallel to the centre line.

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7. Flexible container (30, 34) according to claim 1, characterised in that a portion of the film material has been displaced from the peripheral edge of the container to the centre of the container and is positioned between wall sections located opposite one another, the restraining member connecting said opposite wall sections.

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8. Flexible container (3, 30, 34) according to one of the preceding claims, characterised in that the fill opening is provided with a shut-off valve (10), air being at least partially removed from the container.

10 9. Filling method for filling a flexible container (3, 30, 34) with a fluid substance, comprising the following steps:

- placing the flexible container (3, 30, 34) in a relatively rigid container (2), the flexible container being provided with a film material for containing a fluid substance comprising a fill opening (9) and a partitioning means along which a first container wall part is placed
15 against a second container wall part, the partitioning means dividing the container in a first (17,32,33,38) and a second (17,18,19,32,33,38,42,43) compartment, characterised in that the partitioning means comprises a restraining member (13,14,23,24) which maintains a substantially fluid tight separation of the first and second compartment until a
20 predetermined pressure is achieved in the first compartment, at which predetermined pressure the restraining member is released by the fill pressure for placing the first and second compartment in fluid communication;

- filling the first compartment with the fluid substance via a fill opening (9) in the container (3, 30, 34);

- releasing the restraining member (13, 14, 23, 24) via the fill pressure such that the
25 second compartment (18, 19, 32, 33, 42, 43) is opened ;and

- filling the second compartment (18, 19, 32, 33, 42, 43) until the film material of the flexible container (3, 30, 34) is in contact with the wall of the rigid container (2).

10. Method according to Claim 9, characterised in that air is removed from the flexible
30 container before the flexible container (3, 30, 34) is inserted in the rigid container (2).

11. Method according to Claim 9 or 10, characterised in that the flexible container (3, 30, 34) is folded double along closure lines (13, 14), the container sections folded double being

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~~10~~

attached to one another by means offering resistance (23, 24, 40, 41) which are released by the fill pressure.

12. Method according to Claim 9, 10 or 11, characterised in that during filling the flow rate
5 and/or the fill pressure are measured and in that a change in rate and/or fill pressure is determined on release of the restraining member.

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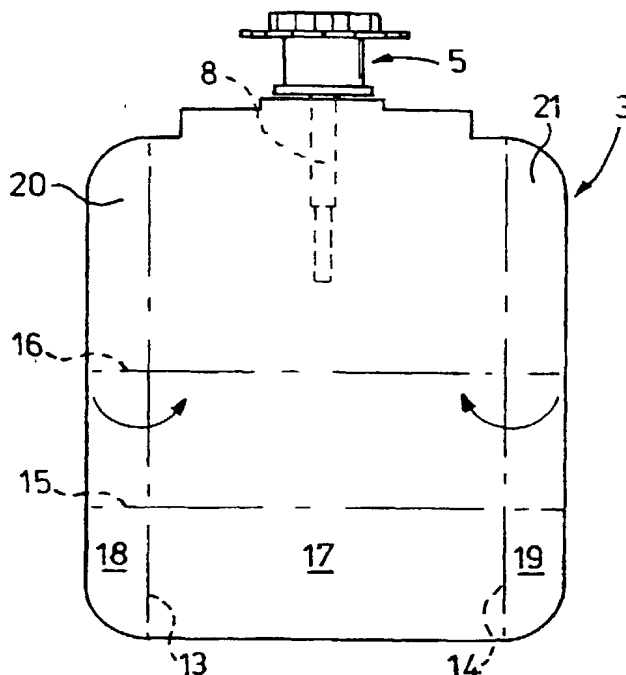
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[Continued on next page]

(54) Title: FLEXIBLE CONTAINER MADE OF FILM MATERIAL AND FILLING METHOD FOR FILLING SUCH A CONTAINER WITH A FLUID SUBSTANCE



(57) Abstract: The application relates to a flexible container (3) made of film material for containing drinks, comprising a fill opening as well as film storage means which delimit a first compartment and a second compartment (17, 18, 19) of the container and which release a second compartment (18, 19) when a predetermined degree of filling of the first compartment (17) is reached. By means of the film storage means, which, for example, can be formed by folding the side strips (20, 21) double in the longitudinal direction and holding them in place with the aid of adhesive tape, adhesive or fusion welding of the film material, uniform filling of the first compartment can be obtained, the flexible container largely remaining out of contact with the walls of the surrounding outer container. When the first compartment (17) has been filled the film storage means are released by the increase in the fill pressure and the second compartment (18, 19) can be filled so that uniform contact of the flexible container with the wall of the outer, rigid container is obtained. Using the flexible container and using the filling method according to the present invention high fill rates can be achieved and stresses are prevented from becoming too high in certain sections of the flexible container.

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Fig - 1

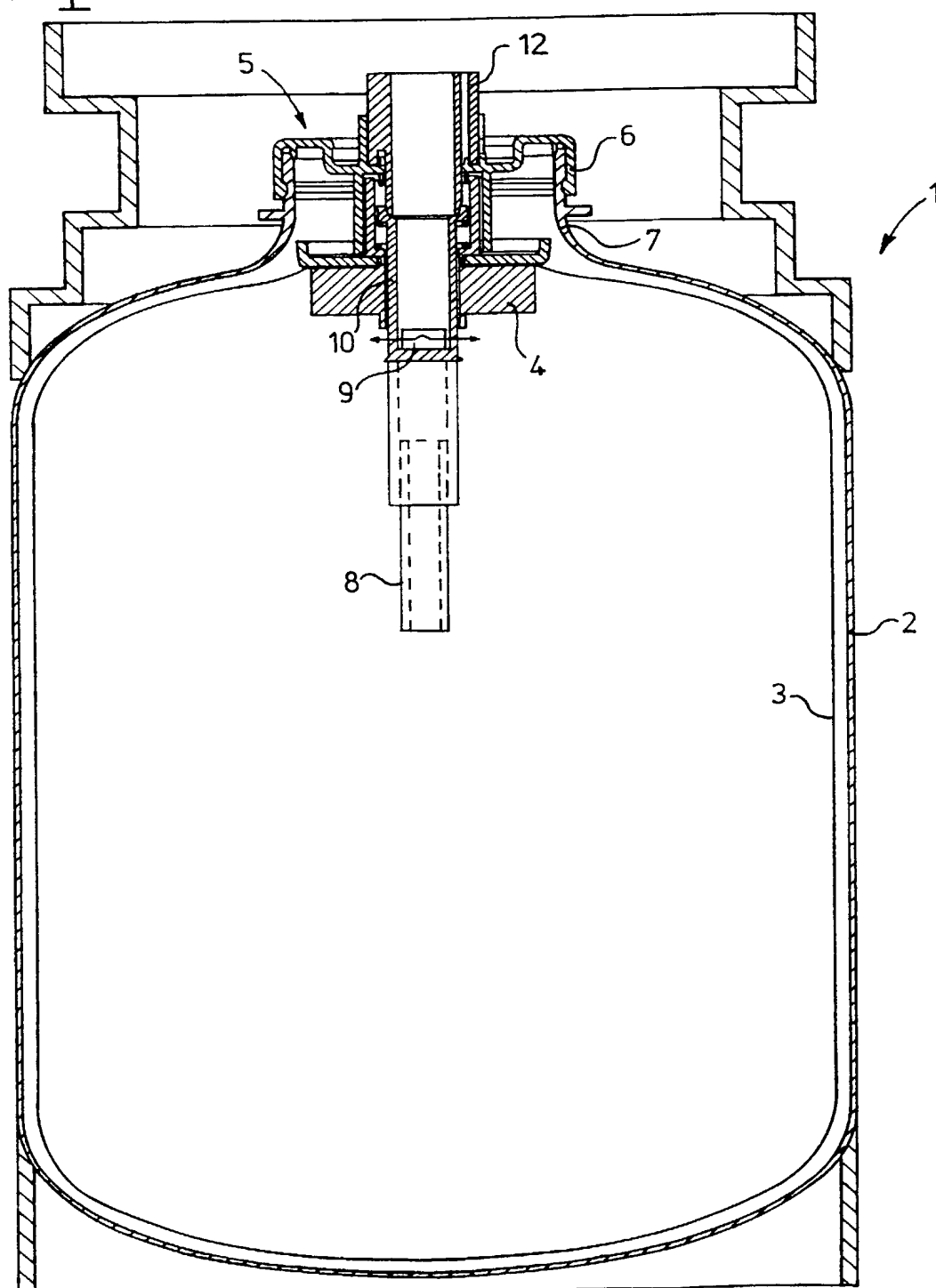
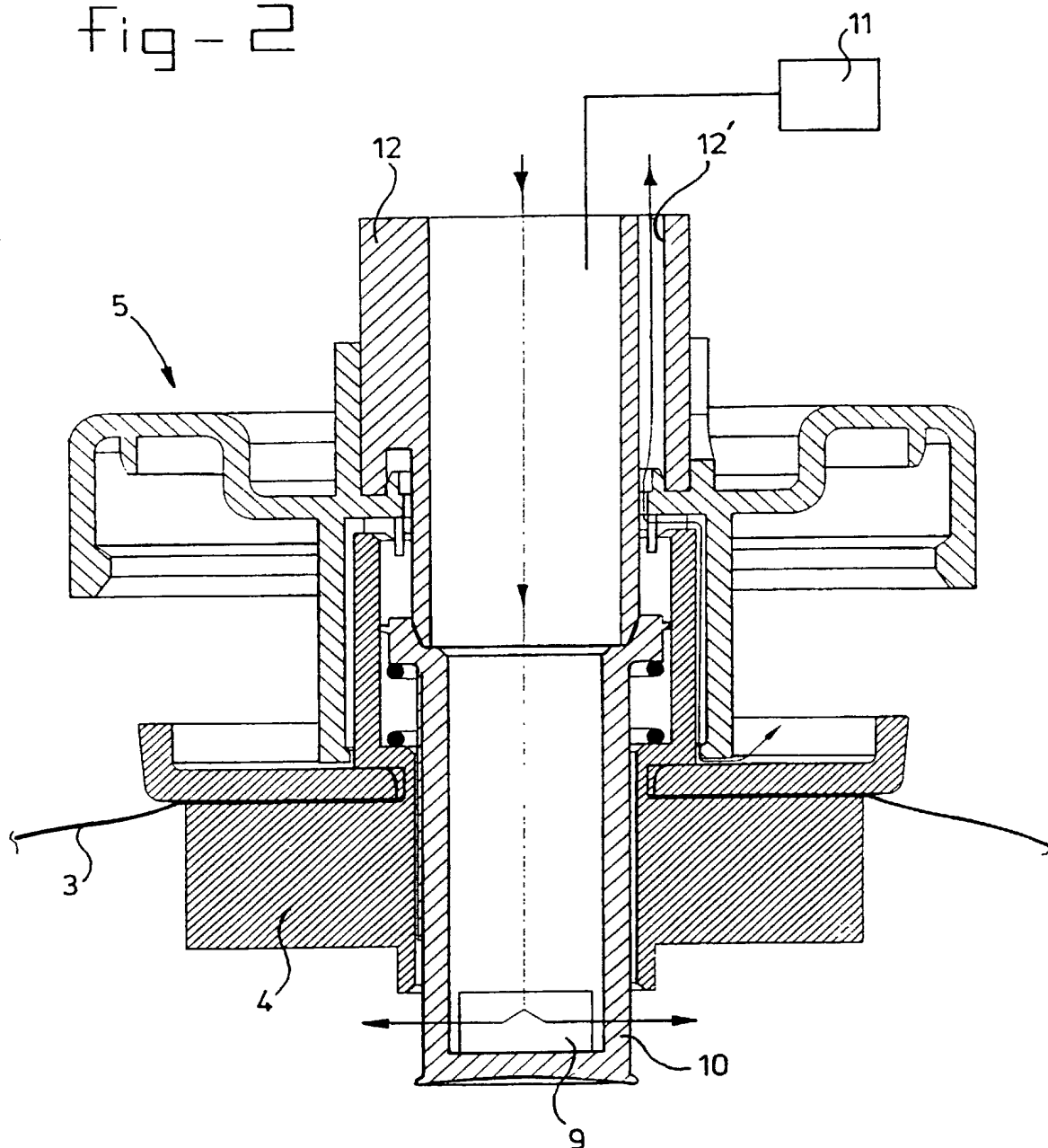


fig - 2



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fig - 3

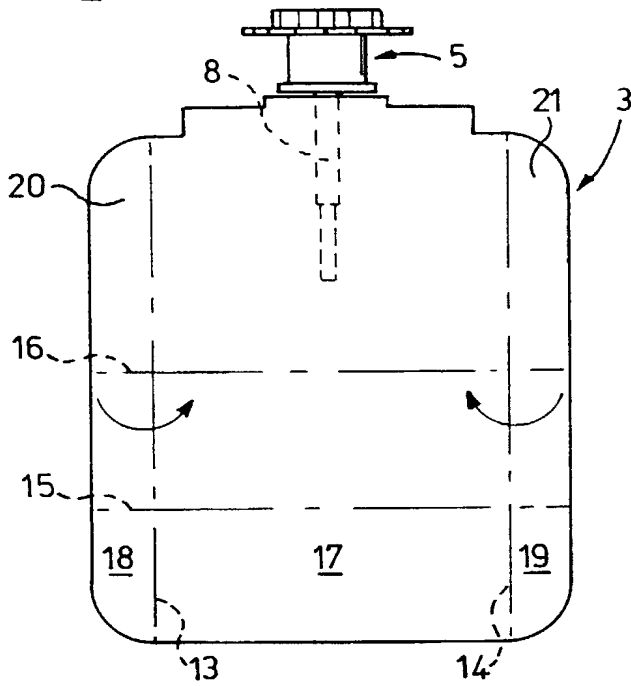


fig - 4

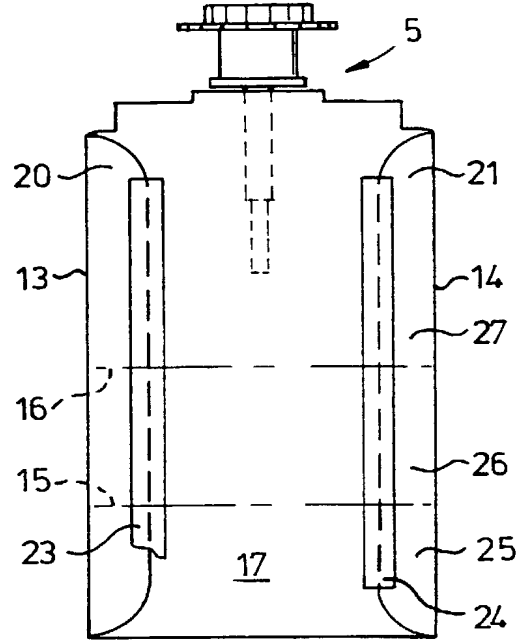


fig - 5

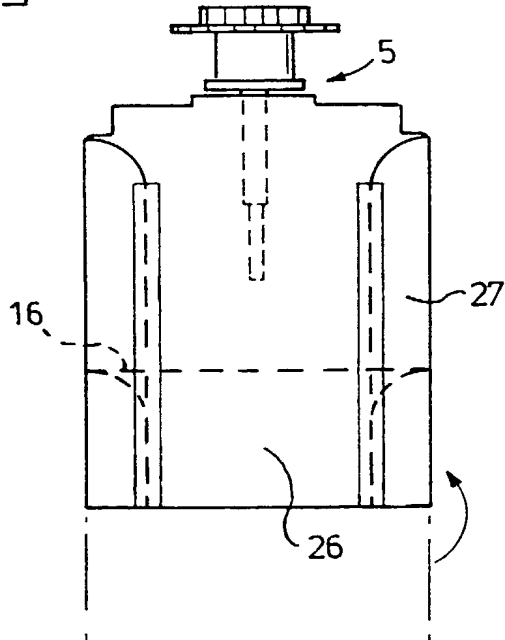
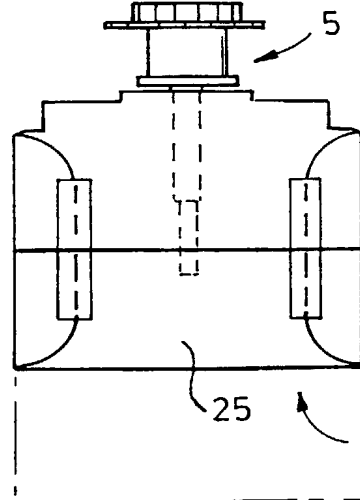


fig - 6



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fig-7

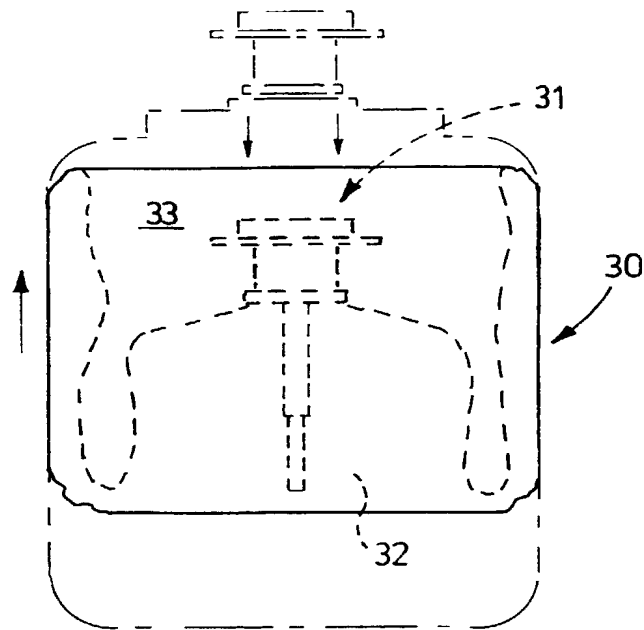


fig-8

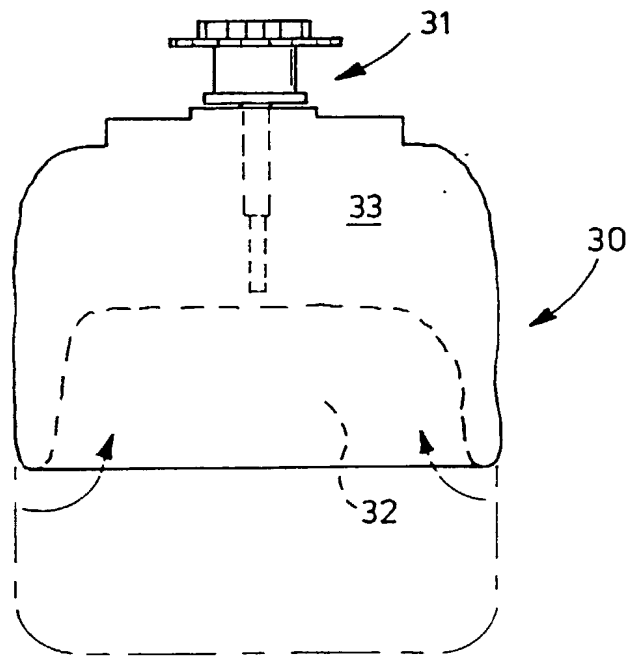


fig-9

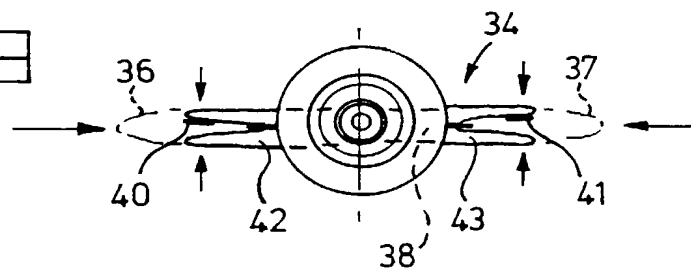
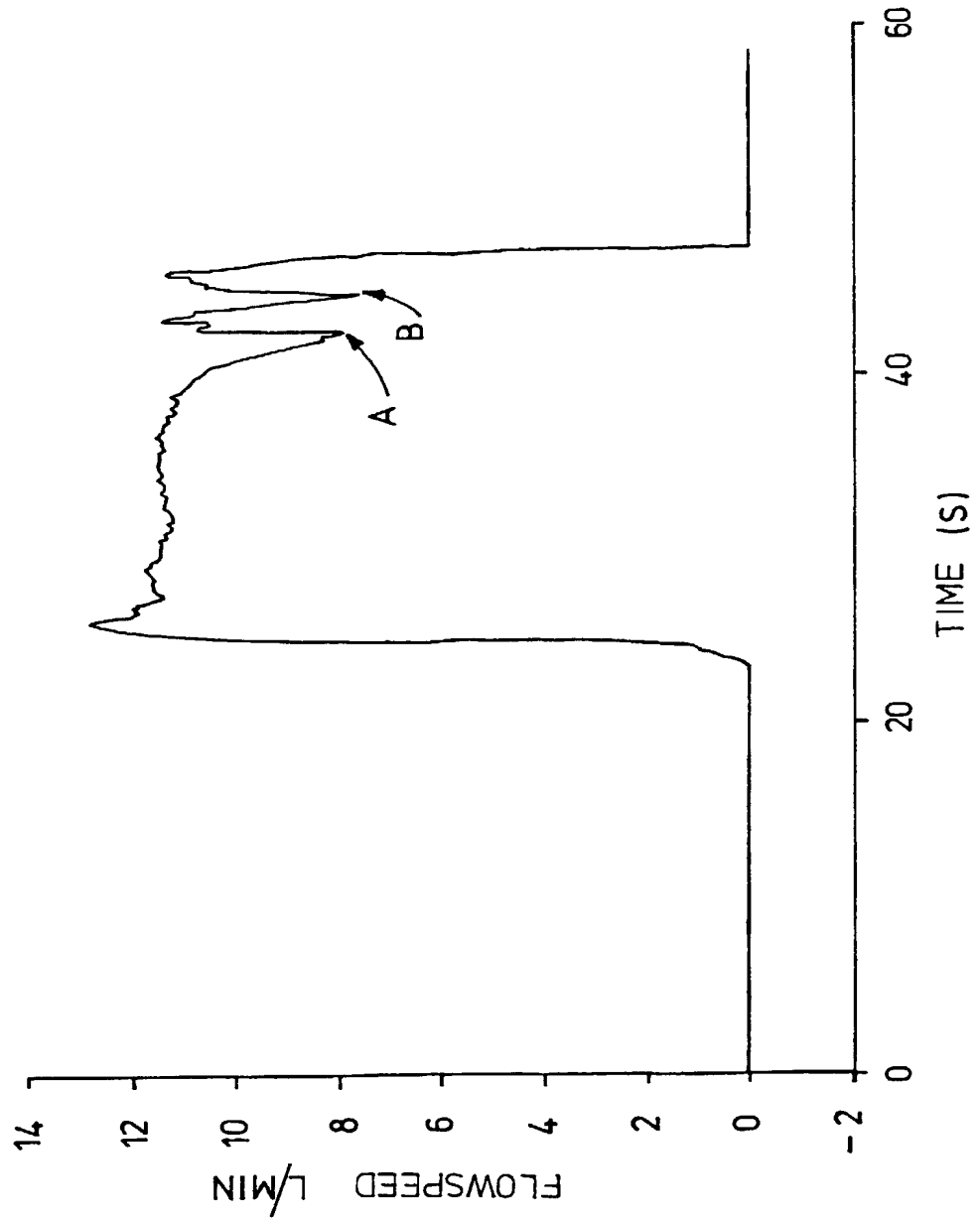


fig-10



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(12687) #5

COMBINED DECLARATION AND POWER OF ATTORNEY

(ORIGINAL DESIGN, NATIONAL STAGE OF PCT OR CIP APPLICATION)

As a below named inventor, I hereby declare that

My residence, post office address and citizenship are as stated below next to my name, I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

Flexible container made of film material and filling method for filling such a container with a fluid substance

the specification of which: (complete (a), (b) or (c) for type of application)

REGULAR OR DESIGN APPLICATION

- a. ☐ is attached hereto.
b. ☐ was filed on _____ as Application
Serial No. _____ and was amended on _____
(if applicable)

PCT FILED APPLICATION ENTERING NATIONAL STAGE

- c. ☒ was described and claimed in International application No. PCT/NL00/00456
filed on 29 June 2000
and as amended on _____ (if any)

ACKNOWLEDGEMENT OF REVIEW OF PAPERS AND DUTY OF CANDOR

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, paragraph 1.56(a).

In compliance with this duty there is attached an information
disclosure statement 37 CFR 1.97

PRIORITY CLAIM

I hereby claim foreign priority benefits under Title 35, United States Code paragraph 119 of any foreign application (s) for patent of inventor's certificate listed below and have also identified below any foreign application for patent of inventor's certificate having a filing date before that of the application on which priority is claimed.

(complete (d) or (e))

- d. ☐ no such applications have been filed
e. ☒ such applications have been filed as follows

**EARLIEST FOREIGN APPLICATION(S), IF ANY FILED WITHIN 12 MONTHS
(6 MONTHS FOR DESIGN) PRIOR TO SAID APPLICATION**

Country	Application Number	Date of filing (day, month, year)	Date of Issue (day, month, year)	Priority claimed
The Netherlands	1012474	29 June 1999		Yes

**ALL FOREIGN APPLICATION(S), IF ANY FILED MORE THAN 12 MONTHS
(6 MONTHS FOR DESIGN) PRIOR TO SAID APPLICATION**

CONTINUATION-IN-PART

(Complete this part only if this is a continuation-in-part application)

I hereby declare claim the benefit under Title 35, United States code, paragraph 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claim of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, paragraph 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, paragraph 1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

(Application Serial No.) (Filing date) (Status) (patented, pending, abandoned)

(Application Serial No.) (Filing date) (Status) (patented, pending, abandoned)

POWER OF ATTORNEY

I hereby appoint all attorneys of SUGHRUE MION, PLLC who are listed under the USPTO Customer Number shown below as my attorneys to prosecute this application and to transact all business in the United States Patent and Trademark Office connected therewith, recognizing that the specific attorneys listed under the customer number may be changed from time to time at the sole discretion of Sughrue Mion, PLLC, and request that all correspondence about the application be addressed to the address filed under the same USPTO Customer Number

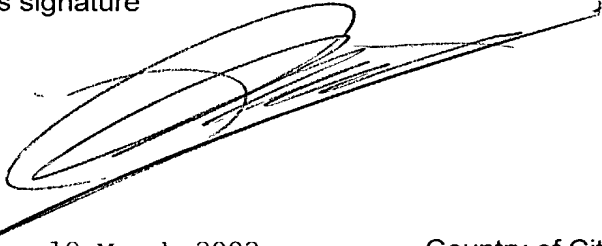
23373

PATENT TRADEMARK OFFICE

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that wilful false statements and the like so made are punishable by fine or imprisonment, or both under Section 1001 of Title 18 of the United States Code and that such wilful false statements may jeopardize the validity of the application or any patent issued thereon.

1-00 Full name of sole or first inventor: VAN BAAL, Patrick Michael

Inventor's signature



Date 19 March 2002

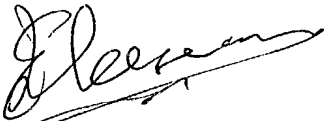
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2-00 Full name of second inventor: HEESEMANS, Erwin

Inventor's signature



Date 19 March 2002

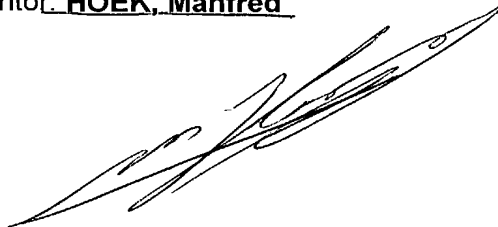
Country of Citizenship: The Netherlands

Residence: GOUDA, The Netherlands NLX

Post Office Address: Jan Philipsweg 30, NL-2802 NZ GOUDA. The Netherlands

3-00 Full name of third inventor: HOEK, Manfred

Inventor's signature



Date 19 March 2002

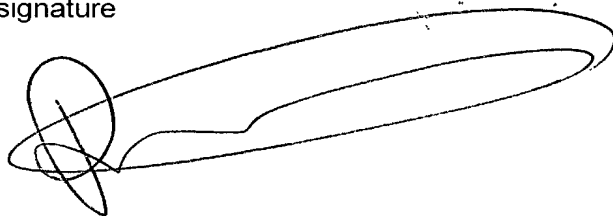
Country of Citizenship: The Netherlands

Residence: ROTTERDAM, The Netherlands

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4-00 Full name of fourth inventor: VAN DER KLAUW, Ronald Marius Johannes Albertus.

Inventor's signature



Date 19 March 2002

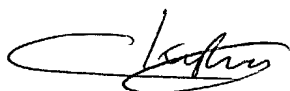
Country of Citizenship: The Netherlands

Residence: VOORHOUT, The Netherlands NLX

Post Office Address: Baarslaan 23, NL-2215 XJ VOORHOUT, The Netherlands

5-00 Full name of fifth inventor: KUYVENHOVEN, Cor

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Date 19 March 2002

Country of Citizenship: The Netherlands

Residence: LEIDEN, The Netherlands NLX

Post Office Address: Aagaatlaan 247, NL-2332 RA LEIDEN, The Netherlands

6-00 Full name of sixth inventor: MENSEN, Henricus Willibrordus Wilhelmus

Inventor's signature



Date 19 March 2002

Country of Citizenship: The Netherlands

Residence: LEIDEN, The Netherlands NLX

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7-00 Full name of seventh inventor: SNIJDERS, Manon Elisabeth Hendrika

Inventor's signature



Date 19 March 2002

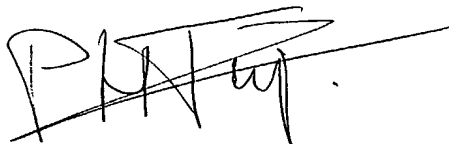
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Post Office Address: Buitendijklaan 5, NL-2353 SC LEIDERDORP, the Netherlands

8-00 Full name of eighth inventor: TIMP, Piet-Hein Willem

Inventor's signature



Date 19 March 2002

Country of Citizenship: The Netherlands

Residence: HEEMSTEDE, The Netherlands NLK

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CHECK PROPER BOX(ES) FOR ANY ADDED PAGE(S) FORMING A PART OF THIS DECLARATION